CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1   1. (Currently Amended) A method of providing reliability to an interconnect
2   fabric for communication among a set of nodes, the method comprising:
3   partitioning ports associated with each node into a first set of ports and
4   a second set of ports;
5   forming a primary interconnect fabric among the first set of ports in
6   response to a set of flow requirements; and
7   forming a backup interconnect fabric among the second set of ports
8   wherein the backup interconnect fabric carries a portion of communications
9   carried by the primary fabric so as to protect against occurrence of a failure in
10   the primary fabric, said forming the backup interconnect fabric comprising
11   determining feasibility of merging candidate flow sets based on a sum of flow
12   requirements in the candidate flow sets that are interrupted by a single failure
13   in the primary interconnect fabric.

1   2. (Currently amended) The method according to claim 1, wherein said
2   forming the backup interconnect fabric further comprises generating
3   arrangements of flow sets in response to the flow requirements, determining
4   feasibility of merging pairs of candidate flow sets and merging a pair of the
5   flow sets.

1   3. (Original) The method according to claim 2, wherein said merging the pair
2   of the flow sets alleviates at least one port violation with respect to the second
3   set of ports.

1   4. (Cancelled) The method according to claim 1, wherein said forming the
2   backup interconnect fabric comprises determining feasibility of merging
3   candidate flow sets based on a sum of flow requirements in the candidate flow
4   sets that are interrupted by a single failure in the primary interconnect fabric.

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5. (Cancelled) The method according to claim 1, wherein said forming the backup interconnect fabric comprises determining feasibility based on a highest sum of flow requirements in the candidate flow sets that are interrupted by different failures in the primary interconnect fabric.

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6. (Original) The method according to claim 1, wherein said set of nodes includes source nodes and terminal nodes.

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7. (Original) The method according to claim 1, wherein each node is associated with at least two ports.

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8. (Original) The method according to claim 1, said partitioning further comprising partitioning the ports associated with each node into a number of additional sets of ports.

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9. (Currently amended) The method according to claim [[5]]8, further comprising forming additional interconnect fabrics among the additional sets of ports.

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10. (Original) The method according to claim 1, wherein the second set of ports includes one port for each node.

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11. (Cancelled) A method of providing reliability to an interconnect fabric for communication among a set of nodes, the method comprising:
identifying one or more failure modes in a primary interconnect fabric, wherein the primary interconnect fabric carries communications among the set of nodes via a first set of ports of the nodes; and
forming a backup interconnect fabric among a second set of ports of the nodes for carrying a portion of the communications of the primary fabric so as to protect against occurrence of any single one of the failure modes of the primary fabric.

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12. (Cancelled) The method according to claim 11, wherein said forming the backup interconnect fabric comprises generating arrangements of flow sets in

3   response to the flow requirements, determining feasibility of merging pairs of

4   candidate flow sets and merging a pair of the flow sets.

1   13. (Cancelled) The method according to claim 12, wherein said merging the

2   pair of the flow sets alleviates at least one port violation with respect to the

3   second set of ports.

1   14. (Currently Amended) ~~The method according to claim 10~~<u>A method of</u>

2   <u>providing reliability to an interconnect fabric for communication among a set</u>

3   <u>of nodes, the method comprising:</u>

4   <u>identifying one or more failure modes in a primary interconnect fabric,</u>

5   <u>wherein the primary interconnect fabric carries communications among the set</u>

6   <u>of nodes via a first set of ports of the nodes; and</u>

7   <u>forming a backup interconnect fabric among a second set of ports of</u>

8   <u>the nodes for carrying a portion of the communications of the primary fabric</u>

9   <u>so as to protect against occurrence of any single one of the failure modes of</u>

10   <u>the primary fabric,</u> wherein said forming the backup interconnect fabric

11   comprises determining feasibility of merging candidate flow sets based on a

12   sum of flow requirements in the candidate flow sets in the primary

13   interconnect fabric that are interrupted by occurrence of a single failure mode

14   in the primary interconnect fabric.

1   15. (Currently Amended) ~~The method according to claim 10~~<u>A method of</u>

2   <u>providing reliability to an interconnect fabric for communication among a set</u>

3   <u>of nodes, the method comprising:</u>

4   <u>identifying one or more failure modes in a primary interconnect fabric,</u>

5   <u>wherein the primary interconnect fabric carries communications among the set</u>

6   <u>of nodes via a first set of ports of the nodes; and</u>

7   <u>forming a backup interconnect fabric among a second set of ports of</u>

8   <u>the nodes for carrying a portion of the communications of the primary fabric</u>

9   <u>so as to protect against occurrence of any single one of the failure modes of</u>

10   <u>the primary fabric,</u> wherein said forming the backup interconnect fabric

11   comprises determining feasibility of merging candidate flow sets based on a

12   highest sum of flow requirements in the candidate flow sets in the primary

13 interconnect fabric that are interrupted by occurrence of different failure

14 modes in the primary interconnect fabric.

1 16. (Cancelled) The method according to claim 11, wherein said set of nodes

2 includes source nodes and terminal nodes.

1 17. (Cancelled) The method according to claim 11, wherein each node is

2 associated with at least two ports.

1 18. (Cancelled) The method according to claim 11, said partitioning further

2 comprising partitioning the ports associated with each node into a number of

3 additional sets of ports.

1 19. (Cancelled) The method according to claim 15, further comprising

2 forming additional interconnect fabrics among the additional sets of ports.

1 20. (Cancelled) The method according to claim 11, wherein the second set of

2 ports includes one port for each node.

1 21. (Cancelled) A system for providing reliability to a design for an

2 interconnect fabric for communication between a set of nodes, the system

3 comprising:

4 a set of design information including a set of flow requirements for the

5 interconnect fabric; and

6 a fabric design tool that generates a primary design for the interconnect

7 fabric among of first set of ports of the nodes, the primary design being in

8 response to the flow requirements, and that generates a backup design for the

9 interconnect fabric among a second set of ports for the nodes wherein the

10 backup design carries a portion of communications carried by the primary

11 fabric so as to protect against occurrence of any single one of failure modes of

12 the primary fabric.

1 22. (Cancelled) The system according to claim 21, wherein said fabric design

2 tool generates arrangements of flow sets in response to the flow requirements,

3   determines feasibility of merging pairs of candidate flow sets and merges a

4   pair of the flow sets.

1   23. (Cancelled) The system according to claim 22, wherein said fabric design

2   tool alleviates at least one port violation with respect to the first or second set

3   of ports.

1   24. (Cancelled) The system according to claim 21, wherein said fabric design

2   tool determines feasibility of merging candidate flow sets based on a sum of

3   flow requirements in the candidate flow sets that are interrupted by a single

4   failure in the primary interconnect fabric.

1   25. (Cancelled) The system according to claim 21, wherein said fabric design

2   tool determines feasibility of merging candidate flow sets based on a highest

3   sum of flow requirements in the candidate flow sets that are interrupted by

4   different failures in the primary interconnect fabric.

1   26. (Cancelled) The system according to claim 21, wherein said set of nodes

2   includes source nodes and terminal nodes.

1   27. (Cancelled) The system according to claim 21, wherein each node is

2   associated with at least two ports.

1   28. (Cancelled) The system according to claim 21, wherein said fabric design

2   tool further partitions the ports associated with each node into a number of

3   additional sets of ports.

1   29. (Cancelled) The system according to claim 28, wherein said fabric design

2   tool forms additional interconnect fabrics among the additional sets of ports.

1   30. (Cancelled) The system according to claim 21, wherein the second set of

2   ports includes one port for each node.

1   31. (New) A method of providing reliability to an interconnect fabric for
2   communication among a set of nodes, the method comprising:
3   partitioning ports associated with each node into a first set of ports and
4   a second set of ports;
5   forming a primary interconnect fabric among the first set of ports in
6   response to a set of flow requirements; and
7   forming a backup interconnect fabric among the second set of ports
8   wherein the backup interconnect fabric carries a portion of communications
9   carried by the primary fabric so as to protect against occurrence of a failure in
10   the primary fabric, wherein said forming the backup interconnect fabric
11   comprises determining feasibility based on a highest sum of flow requirements
12   in the candidate flow sets that are interrupted by different failures in the
13   primary interconnect fabric.

1   32. (New) The method according to claim 31, wherein said forming the
2   backup interconnect fabric further comprises generating arrangements of flow
3   sets in response to the flow requirements, determining feasibility of merging
4   pairs of candidate flow sets and merging a pair of the flow sets.

1   33. (New) The method according to claim 32, wherein said merging the pair
2   of the flow sets alleviates at least one port violation with respect to the second
3   set of ports.

1   34. (New) The method according to claim 31, wherein said set of nodes
2   includes source nodes and terminal nodes.

1   35. (New) The method according to claim 31, wherein each node is
2   associated with at least two ports.

1   36. (New) The method according to claim 1, said partitioning further
2   comprising partitioning the ports associated with each node into a number of
3   additional sets of ports.

1　　37. (New) The method according to claim 36, further comprising forming
2　　additional interconnect fabrics among the additional sets of ports.

1　　38. (New) The method according to claim 31, wherein the second set of ports
2　　includes one port for each node.

1　　39. (New) The method according to claim 14, wherein said forming the
2　　backup interconnect fabric comprises generating arrangements of flow sets in
3　　response to the flow requirements, determining feasibility of merging pairs of
4　　candidate flow sets and merging a pair of the flow sets.

1　　40. (New) The method according to claim 39, wherein said merging the pair
2　　of the flow sets alleviates at least one port violation with respect to the second
3　　set of ports.

1　　41. (New) The method according to claim 14, wherein said set of nodes
2　　includes source nodes and terminal nodes.

1　　42. (New) The method according to claim 14, wherein each node is
2　　associated with at least two ports.

1　　43. (New) The method according to claim 14, said partitioning further
2　　comprising partitioning the ports associated with each node into a number of
3　　additional sets of ports.

1　　44. (New) The method according to claim 43, further comprising forming
2　　additional interconnect fabrics among the additional sets of ports.

1　　45. (New) The method according to claim 14, wherein the second set of ports
2　　includes one port for each node.

1　　46. (New) The method according to claim 15, wherein said forming the
2　　backup interconnect fabric comprises generating arrangements of flow sets in

3 response to the flow requirements, determining feasibility of merging pairs of

4 candidate flow sets and merging a pair of the flow sets.

1 47. (New) The method according to claim 46, wherein said merging the pair

2 of the flow sets alleviates at least one port violation with respect to the second

3 set of ports.

1 48. (New) The method according to claim 15, wherein said set of nodes

2 includes source nodes and terminal nodes.

1 49. (New) The method according to claim 15, wherein each node is

2 associated with at least two ports.

1 50. (New) The method according to claim 15, said partitioning further

2 comprising partitioning the ports associated with each node into a number of

3 additional sets of ports.

1 51. (New) The method according to claim 50, further comprising forming

2 additional interconnect fabrics among the additional sets of ports.

1 52. (New) The method according to claim 15, wherein the second set of ports

2 includes one port for each node.

1 53. (New) A system for generating an interconnect fabric design comprising:

2 means for partitioning ports associated with each node into a first set of

3 ports and a second set of ports;

4 means for generating a design for a primary interconnect fabric among

5 the first set of ports in response to a set of flow requirements; and

6 means for generating a design for a backup interconnect fabric among

7 the second set of ports wherein the backup interconnect fabric carries a portion

8 of communications carried by the primary interconnect fabric so as to protect

9 against occurrence of a failure in the primary interconnect fabric, wherein the

10 means for generating the design for the backup interconnect fabric determines

11 feasibility of merging candidate flow sets based on a sum of flow requirements

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in the candidate flow sets that are interrupted by a single failure in the primary interconnect fabric.

1   54. (New) A system for generating an interconnect fabric design comprising:
2   means for partitioning ports associated with each node into a first set of
3   ports and a second set of ports;
4   means for generating a design for a primary interconnect fabric among
5   the first set of ports in response to a set of flow requirements; and
6   means for generating a design for a backup interconnect fabric among
7   the second set of ports wherein the backup interconnect fabric carries a portion
8   of communications carried by the primary interconnect fabric so as to protect
9   against occurrence of a failure in the primary interconnect fabric, wherein the
10   means for generating the design for the backup interconnect fabric determines
11   feasibility based on a highest sum of flow requirements in the candidate flow
12   sets that are interrupted by different failures in the primary interconnect fabric.

1   55. (New) A system for generating an interconnect fabric design comprising:
2   means for identifying one or more failure modes in a primary
3   interconnect fabric, wherein the primary interconnect fabric carries
4   communications among the set of nodes via a first set of ports of the nodes;
5   and
6   means for generating a design for a backup interconnect fabric among
7   a second set of ports of the nodes for carrying a portion of the communications
8   of the primary interconnect fabric so as to protect against occurrence of any
9   single one of the failure modes of the primary interconnect fabric, wherein the
10   means for generating the design for the backup interconnect fabric determines
11   feasibility of merging candidate flow sets based on a sum of flow requirements
12   in the candidate flow sets in the primary interconnect fabric that are
13   interrupted by occurrence of a single failure mode in the primary interconnect
14   fabric.

1   56. (New) A system for generating an interconnect fabric design comprising:
2   means for identifying one or more failure modes in a primary
3   interconnect fabric, wherein the primary interconnect fabric carries

4   communications among the set of nodes via a first set of ports of the nodes;

5   and

6   means for generating a design for a backup interconnect fabric among

7   a second set of ports of the nodes for carrying a portion of the communications

8   of the primary interconnect fabric so as to protect against occurrence of any

9   single one of the failure modes of the primary interconnect fabric, wherein the

10   means for generating the design for the backup interconnect fabric determines

11   feasibility of merging candidate flow sets based on a highest sum of flow

12   requirements in the candidate flow sets in the primary interconnect fabric that

13   are interrupted by occurrence of different failure modes in the primary

14   interconnect fabric.